

**DE PLANTIS TOXICARIIS E MUNDO NOVO
TROPICALE COMMENTATIONES XXIII**

**ETHNOPHARMACOLOGICAL NOTES FROM
NORTHERN SOUTH AMERICA**

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Increasing evidence indicates that the indigenous population of the northwesternmost part of the Amazon Valley possesses an almost unsurpassed wealth of knowledge of biodynamic plants. There are few parts of the world where native people display such a basic understanding of plants of use as poisons, narcotics or medicines.

Until recently, this corner of the great hylea has not been in danger from penetration by outside civilization. How long this happy state of affairs will continue is open to doubt.

In order to preserve some of this native folk lore, I have been publishing a series of articles summarizing some of the ethnopharmacological information which my students and I have collected in field work from 1941 to the present.

Most of the following notes pertain to the wealth of ethnopharmacological knowledge of Indians of the northwestern Amazon — primarily in Colombian territory, but occasionally from adjacent parts of Brazil, Ecuador and Peru.

Voucher specimens cited are preserved in several herbaria: the Economic Herbarium of Oakes Ames and the Gray Herbarium of Harvard University, the New York Botanical Garden, the Herbario Nacional de Colombia (Bogotá) and the Instituto Nacional de Pesquisas da Amazonia (Manáos).

The families are arranged in accordance with the Engler and Prantl system, and the genera are alphabetically enumerated under their respective families.

LYCOPODIACEAE

***Lycopodium cernuum* Linnaeus, Sp.Pl. (1753)1103.**

COLOMBIA: Comisaría del Amazonas, Río Amazonas, vicinity of Leticia. August 29 - September 12, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto* 24038.

A Dragendorff spot-test for alkaloids was positive for this common species of *Lycopodium*.

Alkaloids have recently been detected in about a dozen species of Lycopodiaceae. Nicotine and quinolizidine bases account for most of the lycopodiaceous alkaloids (Tyler, V.E.: *Lloydia* 24(1961)58).

PIPERACEAE

Peperomia macrostachya (*Vahl.*) *Dietrich* var. **nematostachya** (*Link.*) *Trelease et Yuncker*, *Piperac. N. S. Am.* 2(1950)661.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. "Epiphyte". March 8, 1951. *R.E. Schultes et I. Cabrera* 13260. — Río Vaupés, Mitú and vicinity. *R.E. Schultes, R.F. Raffauf et D. Soejarto* 24178.

The leaves of this climbing epiphyte are boiled, and the resulting tea is taken by elderly members of the Taiwano tribe to relieve difficulty in urinating. It is said also to be an effective febrifuge.

A Dragendorff spot test for alkaloids (*Schultes, Raffauf et Soejarto* 24178) was negative.

Piper hostmannianum (*Miq.*) *C. DeCandolle* in *DeCandolle Prodr.* 16, pt.1(1869)287.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, vicinity of Leticia. "Small bush. Leaves aromatic." August 29 - September 12, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto* 24018.

In the Leticia region, a poultice of the crushed leaves is applied to warts in the belief that this hastens their disappearance. The plant is known as *cordoncillo*, a name applied to many species of *Piper* in reference to the inflorescence (*cordoncillo* = "shoe string").

Piper interitum *Trelease ex Macbride* in *Field Mus. Publ. Bot.* 18, No. 357(1936)176.

PERU: Departamento del Loreto, Zapote, Alto Río Purús. "Tree about 10 meters high. Lowland forest". October 15, 1968. *L.Rivier* 21.

The dried leaves and roots are pulverized and used as a substitute for tobacco snuff. The Kulina Indian name is *tetsi*.

Pothomorphe umbellata (L.) Miquel, *Comm. Phyt.* (1840)36.

COLOMBIA: Comisaría del Putumayo, Río Guamües, San Antonio. "Secondary growth. Herb 5-6 feet." September 5, 1966. *H.V. Pinkley* 421.

The Kofán Indians prepare an arrow poison of this plant alone (the bark of the lower stem and root is scraped and boiled) or mixed with other plant ingredients, especially for hunting monkeys and wild pigs. The Kofán name is *a-nama-he-se-hé-pa*.

This species has been employed as a strong diuretic in Brazil (Peckholt, T.: *Pharm. Rundschau* 12(1894)240,285), but there appears to be no chemical constituent which would make the bark active as an ingredient of curare.

MYRICACEAE

Myrica parvifolia *Benth*, *Pl. Hartw.* (1846)251.

COLOMBIA: Departamento de Cundinamarca, Bogotá, Cerro above La Cita. May 10, 1946. *R.E. Schultes* 7111.

Bundles of the leaves and stems of this shrub are burned in huts in the cool, humid highlands around Bogotá for the aromatic smoke which is believed to relieve congestion caused by the frequent pulmonary troubles of these people.

POLYGONACEAE

Rumex obtusifolius *Linnaeus*, *Sp. Pl.* (1753)335.

COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy, Sibundoy. Alt. 2225-2300 m. May 29, 1946. *R.E. Schultes et M. Villarreal* 7610. — Same locality. "Lengua de vaca". February 20, 1963. *P.J. Chindoy B.* 97. — Same locality. "Garden and waste places, very frequent. One or two most persistent, most frequent weeds in valley". April 1, 1963. *M.L. Bristol* 704. — Same locality. "Lengua de vaca. Open pasture; infrequent." May 8, 1963. *M.L. Bristol* 969.

The Kamsá Indians of Sibundoy employed the roots of *Rumex obtusifolius* in decoction as a strong laxative.

The roots contain 1,8-dihydroxynaphthaline (Hesse, O.: Ann. Chem. 305 (1896)291).

MENISPERMACEAE

Curarea tecunarium *Barneby et Krukoff* in Mem. N.Y. Bot. Gard. 22(2)1971)12.

BRAZIL: Estado do Amazonas, Rio Cunhuá, Deni Indian village. November 28, 1971. *G.T. Prance, R.J.M. Maas, D. Woolcott et al. 16453.*

COLOMBIA: Comisaría del Putumayo, Río Guamües, Salvador. "Arrow poison" August - September 1963. *C. Naranjo et G. Wiederhold 16.* - Comisaría del Vaupés, Río Macaya, vicinity of Cachivera del Diablo. "Said to have been used formerly by Karijona Indians in arrow poisons. Vine. Fruits yellow, very bitter." May 1943. *R.E. Schultes 5526.* - Río Macú-Paraná, lowland forest. "Root scrapings are used in preparing arrow poison mixture by Bara-Makú. *Awa-puh'* (species of monkey root). June 1-8, 1970. *P. Silverwood - Cope 23.*

Curarea tecunarium is well recognized as one of the principal sources of an especially strong curare in the northwestern Amazon. Its use as a contraceptive, however, is not widely known. According to *Prance, Maas, Woolcott et al. 16453*, the stem is crushed and placed in water, stirred and taken as a contraceptive by the Deni Indians.

Telotoxicum peruvianum *Moldenke* in Brittonia 3(1938)45.

COLOMBIA: Comisaría del Vaupés, Río Piraparaná, Caño Teemeeña, (Lobo Igarapé). "Small tree. Fruit dark green. Barasana: *bo-dé-mee-see'*". September 10, 1952. *R.E. Schultes et I. Cabrera 17340.*

The Makuna Indians value *Telotoxicum peruvianum* as an important ingredient of the curare that formerly was prepared by medicine men of the Río Piraparaná. The Barasana believe that application of crushed leaves to ulcers and similar infections aids in cleansing the wounds.

ANNONACEAE

Anaxagorea sp.

ECUADOR: Napo, Río Aguarico, Dureno. "Tree." December 12, 1955. *H.V.*

Pinkley 16. — Same locality. "Small tree, 6 - 8 feet." October 19, 1966. *H.V. Pinkley 522.*

The bark of the root of this treelet is an ingredient of curare amongst the Kofáns. The Kofán name is *ko-yo-vi-fá-nti*.

Cyanogenesis is reported from a Philippine species of *Anaxagorea* (Hegnauer, R.: *Chemotaxonomie der Pflanzen* 3(1964)121)

Guatteria Duckeana *R.E. Fries* in *Acta Horti Berg.* 12 (1939) 468.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Cachivera de Tatú. "Tree 45 feet. Flowers green." October 20, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24377.*

All parts of this plant tested very positive for alkaloids with Dragendorff reagent.

Guatteria dura *R.E. Fries* in *Acta Horti Berg.* 12(1939)499.

COLOMBIA: Comisaría del Vaupés, Río Kuduyarí. "Tree 18 feet. Flowers yellow-green, cauliflorous." October 10, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24391.*

The bark tested highly positive for alkaloids, the leaves slightly positive, with Dragendorff reagent.

Unonopsis veneficiorum (*Mart.*) *R.E. Fries* in *Acta Horti Berg.* 12(1937)238.

COLOMBIA: Comisaría del Vaupés, right tributary of Río Macú-paraná. June 1-8, 1970. *P. Silverwood-Cope 11.*

This plant is reported to be an ingredient of a contraceptive formula of the Bora-Makú who inhabit the region of the Río Piraparaná in the Colombian Vaupés. The name of the medicinal preparation in Makú is *wé-wit-kat-ku* ("no children medicine").

Unonopsis veneficiorum has long been known as an ingredient of a type of curare in the northwestern Amazon. The plant is alkaloidal (Hegnauer, R.: *Chemotaxonomie der Pflanzen* 3(1964)118).

Xylopia amazonica *R.E. Fries* in *Acta Horti Berg.* 12(1939)562.

COLOMBIA: Comisaría del Amazonas. Río Apaporis, Soratama. "Large tree. Flowers white. High land." September 28, 1951. *R.E. Schultes et I. Cabrera 14146.*

Xylopia amazonica is valued by the Indians of the Río Apaporis in the form of a tea to induce sleep. The leaves and stems are employed. Alkaloids, polyphenols, and essential oils have been reported from *Xylopia* (Hegnauer, R.: *Chemotaxonomie der Pflanzen* 3(1964)118, 120).

***Xylopia Benthamii* R.E. Fries** in Kgl. Sv. Vet.-Akad. Handl. 34, No. 5(1900)35.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. Alt. 2500 feet. "Small tree. Pods white and red. Forest on slope near summit." December 4, 1951. *R.E. Schultes et I. Cabrera 14751.*

According to the Taiwanos of the Río Kananarí, a tea of this plant is administered as a tranquilizer to people who have experienced a great fright.

MYRISTICACEAE

***Osteophloem platyspermum* (Poepp.) Warburg** in Nova Acta Acad. C. L. C. G. Nat. Cur. 68(1897)162.

BRAZIL: Estado do Amazonas, basin of Rio Negro, Rio Uniciuxí, Makú Indian village 300 km. above mouth. "Forest on terra firma. Tree. 25m. x 40 cm. diameter. Flowers green. Sap drunk by Makú as cure for coughs and colds. Makú = *tugnebanpe*." October 23, 1971. *G.T. Prance, R.J.M. Maas, D.B. Woolcott et al. 15571.* — Rio Negro, vicinity of Manáos, Reserva Ducke. April 11-14, 1972. *R.E. Schultes et W. Rodrigues 26126a.*

The Makú drink the sap as a "cure for coughs and colds." Labourers in the Reserva Ducke near Manáos burn the leaves and inhale the smoke to relieve asthmatic conditions.

Chemical studies of *Osteophloem* apparently have not been effected.

LEGUMINOSAE

***Acosmium nitens* (Vog.) Yakovlev** in Notes Roy. Bot. Gard. Edinb. 29(1969)353.

BRAZIL: Estado do Amazonas, Rio Negro, Tapurucuara. "Flowers white. Small tree. Bark very alkaloid-positive; petiole and leaf negative." July 5 - August 12, 1967. *R.E. Schultes 24550* (Alpha-Helix Amazon Expedition 1967).

The bark of this tree was indicated as an ingredient of curare made in former times by the Tukano Indians.

Heterostemon mimosoides Desfontaines in *Mem. Mus. Paris* 4(1818)248.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Small tree or bush. Flowers purple. Alkaloid-negative." September 27 - October 20, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24171*.

The flowers are said formerly to have been pulverized and used for flavouring chicha.

OXALIDACEAE

Oxalis lotoides *Humboldt, Bonpland et Kunth, Nov. Gen. et Sp.* 5(1821)187.

COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy, Sibundoy. Alt. 2225-2399 m. May 29, 1946. *R.E. Schultes et M. Villarreal 7607*.

The Kamsá Indians prepare a tea of this plant which is taken as a gargle to relieve chest and throat pains.

It is perhaps significant that the leaves of another species of this genus, the Amazonian *Oxalis Martiana* Zucc., are prepared in the form of a gargle to relieve pains of angina (LeCointe: *A Amazonia Brasileira* 3(1943)108).

Leucoanthocyanines have been reported from some species of *Oxalis* (Bate-Smith, E.C.: *Journ. Linn. Soc. London (Botany)* 58(1962)95-173).

VOCHYSIACEAE

Qualea acuminata *Spruce ex Warming* in *Martius, Fl. Bras.* 13, pt. 2(1882)40.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Small tree. Flowers white and pink." September 27 - October 20, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24177*.

This plant tests alkaloid-negative with Dragendorff reagent. A tea of the bark is valued as a taenifuge in the Mitú area. The chemistry of *Qualea* is unknown.

EUPHORBIACEAE

***Croton glabellus* Linnaeus, Syst. Ed. X(1758)1275.**

COLOMBIA: Comisaría del Amazonas, near mouth of Río Loretoyacu and Puerto Nariño. "Fruit green. Small tree." September 13-15, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24149.*

Witoto Indians living in the vicinity of Leticia crush leaves of this tree to poultice infected cuts and sores.

Croton glabellus has been reported to be alkaloid-positive (Haynes, L.J. et K.L. Stuart: *Journ. Chem. Soc.* 1963 (1963) 1784, 1789).

***Croton palanostigma* Klotzsch in Hooker Lond. Journ. Bot. 2 (1843) 48.**

BRAZIL: Estado do Amazonas, vicinity of Manaus, Reserva Ducke. "Small tree. Flowers white". April 11 - 14, 1972. *R.E. Schultes et W. Rodrigues 261241a.*

The sap of this tree is applied to ulcers and boils to reduce pain.

***Mabea nitida* Spruce ex Benth in Hooker Kew Journ. 6 (1854) 367.**

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Tree 20 feet. Fruit rusty. Alkaloid-negative." September 27 - October 20, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24170.*

The oil extracted from the seeds was, according to Kubeo informants, formerly rubbed into the scalp to prevent or delay loss of hair.

BOMBACACEAE

***Bombax globosum* Aublet, Pl. Guian. Fr. 2 (1775) 701.**

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. "Large tree, 60 - 70 feet tall. Flowers yellow-white, petals yellow to-

wards tip." September 29, 1951. *R.E. Schultes et I. Cabrera 14700.*

The Taiwano Indians, who know this tree as *ka-ne-weé-re*, gathered the "wool" from the ripened fruits for use, mixed with latex or resin from a number of plants, to apply to cuts, open sores or ulcers as a kind of protection during healing.

STERCULIACEAE

Herrania Camargoana *R.E. Schultes* in *Bot. Mus. Leafl., Harvard Univ.* 14(1950)120.

BRAZIL: Estado do Amazonas, Rio Cauaburí, Maturacá. "Single slender trunk. Height 20 ft. In flood forest. Fruit brownish red with fleshy pseudospines at junction of ribs and cross ridges. Alkaloid-negative." July 5 - August 12, 1967. *R.E. Schultes 24572* (Alpha-Helix Amazon Expedition, 1967).

The bitter seeds of *Herrania Camargoana* are pulverized and employed as a condiment on game-meat by the Waika Indians of the Rio Cauaburí in northwestern Brazil.

GUTTIFERAE

Caraipa parvielliptica *Cuatrecasas* in *Rev. Acad. Col. Cienc.* 8, No. 29 (1950)64.

COLOMBIA: Comisaría del Vaupés, Río Kananarí, Cerro Isibukuri. "Bush along rill." April 12, 1951. *R.E. Schultes et I. Cabrera 14738.* — Comisaría del Amazonas, Río Apaporis, Soratama. "Height 60 feet." March 26, 1952. *R.E. Schultes et I. Cabrera 16070.* — Río Miritiparaná. "Small tree. Yukuna: *seé-na.*" May 8, 1952. *R.E. Schultes et I. Cabrera 16460.*

The Yukunas apply the sap of *Caraipa parvielliptica* to sores of the mucous membrane of the mouth. In Brazil, the sap of *C. paraensis* Huber and *C. grandifolia* Martius is similarly employed for herpes, mange and itches (LeCointe: *A Amazonia Brasileira* 3(1934)424).

Several species of *Caraipa* have been reported to contain a high content of resins which are useful in treating a variety of skin diseases. A highly toxic vermifugal constituent has been found in the seeds (Freise, F.W.: *Apoth. Zeit.* 44(1929)1481).

Symphonia globulifera *Linnaeus filius*, Suppl. (1781)302.

COLOMBIA: Comisaría del Amazonas, Río Apaporis, Soratama. "Flowers red. Height 75 feet." December 14, 1951. *R.E. Schultes et I. Cabrera 14904*.

The bark of this tree, source of a very useful resinous latex, is said by the Indians of the middle Río Apaporis to be very effective, when burned to ashes and applied to recalcitrant ulcers of the abdomen and legs, in rapidly drying the infection.

Vismia ferruginea *Humboldt, Bonpland et Kunth*, Nov. Gen. et Sp. 5(1821)141.

BRAZIL: Estado do Amazonas, Manaós, Flores. "Flowers greenish white. Common bush in scrub growth." July 5 - August 12, 1967. *R.E. Schultes 24594* (Alpha-Helix Amazon Expedition 1967).

The resinous exudate of this bush is commonly applied to sores of the skin in the region of Manaós.

FLACOURTIACEAE

Banara guianensis *Aublet*, Pl. Guian. Fr. (1775)548.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Bushy tree, common on river bank. Flowers green-yellow." September 27 - October 20, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24176*.

A spot test with Dragendorff reagent gave a doubtful positive result for alkaloids.

Mayna longifolia *Poeppig et Endlicher*, Nov. Gen. et Sp. 3 (1845) 64.

COLOMBIA: Comisaría del Amazonas, Río Miritiparaná, Caño Guacoyá. "Fruit cauline, greenish white." April 25, 1952. *R.E. Schultes et Cabrera 16285*.

The seeds of this shrub are crushed and boiled in water to make a tea to provoke vomiting in cases of serious food poisoning, especially from tainted fish. The tea must, however, be used with caution, since it is reputedly toxic, causing extreme dizziness, profuse sweating and uncontrollable trembling.

The plant is well known by all Indians of the area. The

Makuna call it *oo-too-mee-ko*; the Miraña, *do-ro-hě*; the Tanimuka, *ya-poo-moo-ho*; the Yukuna, *ka-sá-ra* ("beetle tree").

Mayna toxica *R.E. Schultes* in *Rhodora* 65(1963)16, t. 10.

COLOMBIA: Comisari del Amazonas, Río Caquetá, La Pedrera and vicinity, Quebrada Tonina. On high land. "Small tree, 20 feet tall. Flowers white." October 5, 1952. *R.E. Schultes et I. Cabrera 17731*.

The Miraña Indians of the La Pedrera region assert that formerly the bark of seeds of this tree were given to dogs as a poison. The same uses have hitherto been reported (*Schultes, R.E. in Rhodora loc. cit.*) from the Vaupés and for other Indian tribes. It was then indicated that: "The fact that at least two species — *Mayna muricida* and *M. toxica* — are similarly employed for their toxic properties by Indians in far-separated parts of the Colombian Amazon suggests that an investigation into the chemical constituents of this genus might be of interest."

Ryania angustifolia (*Turcz.*) *Monachino* in *Lloydia* 12(1949) 21.

COLOMBIA: Comisaría del Vaupés, Río Vaupés, Mitú and vicinity. "Small tree in secondary growth. Flowers white. Leaves and twigs: alkaloid doubtful. Bark: alkaloid negative." September 27 - October 20, 1966. *R.E. Schultes, R.F. Raffauf et D. Soejarto 24175*.

The root, although not used, is considered poisonous by the Kubeo Indians.

One species, *Ryania dentata* *Miq.*, has been reported as an ingredient of an arrow poison in Colombia (*Mezey, K.: Rev. Acad. Col. Cienc. Exact. Fis. Nat. 7(1947)319*).

Sundry species of *Ryania* are recognized in South America as poisonous. The toxicity is due presumably to a glycoside (*Merz, K.W.: Arch. Pharm. 268(1930)592; Nakarai, S. et T. Sano: Arch. Pharm. 272(1943)1*).

COMBRETACEAE

Combretum Cacoucia *Exell* in *Kew Bull.* 1931(1931)469.

BRAZIL: Estado do Para, Utinga, Belém. "*Rabo de arara*. Extensive liana.

Acrid water in stem. Flowers red, said to be poisonous." September 1947. *R.E. Schultes* 8668.

There are numerous reports, similar to the folk report from Belém do Pará connected with this collection, that the flowers of *Combretum Cacoucia* are toxic. There is apparently no chemical evidence to sustain this assertion, yet the number of reports is such that the problem bears serious study.

Caffeine and tannins have been reported from the genus *Combretum* (Gibbs R.D.: *Chemotaxonomy of Flowering Plants* 3 (1974) 1478).

SOLANACEAE

***Saracha procumbens* (Cav.) Ruíz et Pavón**, Fl. Peruv. 2 (1799) 43.

COLOMBIA: Comisaría del Putumayo, Valle de Sibundoy, Sibundoy and vicinity. Alt. 2225-2300 m. May 29, 1946. *R.E. Schultes et M. Villarreal* 7615. — Same locality. August 22, 1963. *M.L. Bristol* 1328.

According to Bristol, the Kamsá Indian name of this garden plant, the fruit of which is edible, is *chuftanguemesha*. A tea of the whole plant is drunk as a diuretic and febrifuge (*Schultes et Villarreal* 7615).

BIGNONIACEAE

***Pseudocalymma alliaceum* (Lam.) Sandwith** in Rec. Trav. Bot. Neerl. 34(1937)210.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. Alt. 100 M. "Arbusto de 1.5 m., esteril. Olor fuerte aliaceo. Alcaloides: positivo. Nombre vulgar: *sacha-ajo*." October 8, 1961. *J.M. Idrobo* 4687.

Although this plant is alkaloid-positive with a Dragendorff test, the whole plant, crushed and made into a tea, is taken frequently to relieve pulmonary ailments.